

# **RZC**

## **Article IV**

# **Environmental Regulations**

## **RZC 21.64 Critical Areas Regulations**

<b>21.64.010</b>	<b>Critical Areas</b>
<b>21.64.020</b>	<b>Fish and Wildlife Habitat Conservation Areas</b>
<b>21.64.030</b>	<b>Wetlands</b>
<b>21.64.040</b>	<b>Frequently Flooded Areas</b>
<b>21.64.050</b>	<b>Critical Aquifer Recharge Areas</b>
<b>21.64.060</b>	<b>Geologically Hazardous Areas</b>
<b>21.64.070</b>	<b>Procedures</b>

### **21.64.010 Critical Areas**

#### **(A) Purpose.**

The purposes of this chapter are to:

- (1) Preserve the City's important environmental features while allowing development to occur if compatible with and in consideration of these critical areas;
- (2) Assure the conservation and protection of critical areas from loss or degradation by classifying and designating the same, and to restrict land uses and development which are incompatible with environmentally critical areas;
- (3) Achieve no net loss of core preservation areas within fish and wildlife habitat conservation areas, which includes riparian corridors, and minimize impact to and retain character of quality habitat areas, and protect species of concern, priority species, and species of local importance;
- (4) Avoid wetland impacts and achieve a goal of no net loss of wetland function, value and acreage; and where possible enhance and restore wetlands;
- (5) Achieve no net loss of structure, value, and functions of natural systems within frequently flooded areas and to employ no net impact floodplain management in order to avoid impacts to upstream and downstream properties and substantial risk and damage to public and private property and loss of life;
- (6) Protect critical aquifer recharge areas by avoiding land use activities that pose potential contamination; and to minimize impacts to recharge areas through the application of strict performance standards;
- (7) Avoid and minimize potential impacts to life and property from geologic hazards such that sites are rendered as safe as one not containing such hazard through appropriate levels of study and analysis, application of sound engineering principles, and regulation or limitation of land uses;
- (8) Avoid impacts to critical areas and preserve the functions of critical areas. In appropriate circumstances, impacts to specified critical areas resulting from regulated activities may be minimized, rectified, reduced and/or compensated for, consistent with the requirements of this chapter;
- (9) By limiting development and alteration of critical areas:
  - (a) Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, or flooding;
  - (b) Protect unique, fragile, and valuable elements of the environment, including ground and surface waters, wetlands, and fish and wildlife and their habitats;
  - (c) Direct activities not dependent on critical area resources to less ecologically sensitive sites and mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas; and
  - (d) Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, frequently flooded areas, and habitat conservation areas;

- (10) Provide standards, guidelines, and criteria to guide application of these critical areas goals and policies when considered with other goals and policies of the RZC, including those pertaining to natural features and environmental protection;
- (11) Serve as a basis for exercise of the City's substantive authority under the State Environmental Policy Act (SEPA) and the City's SEPA rules;
- (12) Protect critical areas in accordance with the Growth Management Act and through the application of best available science, as determined according to WAC 365-195-900 through 365-195-925, and in consultation with state and federal agencies and other qualified professionals; and
- (13) Coordinate environmental review and permitting of proposals to avoid duplication and delay.

(B) Findings.

The City finds that:

- (1) Redmond contains certain areas that can be identified and characterized as environmentally sensitive or critical. Such areas within the City include fish and wildlife habitat conservation areas, wetlands, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas, and their associated buffers.
- (2) Past growth patterns have in some cases contributed in natural disasters which threaten public health and safety, and that by preventing development on certain critical areas the City can better maintain public health, safety and welfare. In addition, by preserving features that provide for clean water, fisheries, and wildlife, the City can help maintain a positive ecological balance that provides for the immediate and long-term public welfare.
- (3) Critical areas perform a variety of valuable and beneficial biological and physical functions that benefit the City and its residents. Some types of critical areas may also pose a threat to human safety or to public and private property. The functions of critical areas include the following:

- (a) Fish and Wildlife Habitat Conservation Areas. Wildlife areas are ecosystems composed of unique interacting systems of soils, geology, topography, and plant and animal communities. They consist of land-based areas and aquatic areas.

Wildlife habitat provides opportunities for food, cover, nesting, breeding and movement for fish and wildlife within the City; maintains and promotes diversity of species and habitat within the City; helps to maintain air and water quality; controls erosion; serves as areas for recreation, education and scientific study and aesthetic appreciation; and provides neighborhood separation and visual diversity within urban areas.

Riparian corridors are essential for wild fish populations. Healthy riparian zones are dynamic ecosystems that perform various functions that form salmonid habitat. Some of the major functions include: producing and delivering large and small woody debris to shorelines and stream channels; shoreline protection and habitat formation; removing sediments and dissolved chemicals from water; moderating water temperature; providing favorable microclimate; providing habitat for terrestrial animals; and providing proper nutrient sources for aquatic life. Additionally, aquatic areas and their associated buffers store and convey storm water and floodwater; recharge groundwater; and serve as areas for recreation, education and scientific study and aesthetic appreciation. The City's overall goal shall be no net loss of riparian corridor functions and values.

- (b) Wetlands. Wetlands are fragile ecosystems which serve a number of important beneficial functions. Wetlands assist in the reduction of erosion, siltation, flooding, ground and surface water pollution, and provide wildlife, plant, and fisheries habitats. Wetlands destruction and impairment may result in increased public and private costs or property losses.

Wetland buffers serve to moderate runoff volume and flow rates; reduce sediment, chemical nutrient and toxic pollutants; provide shading to maintain desirable water temperatures; provide habitat for wildlife; protect wetland resources from harmful intrusion; and generally preserve the ecological integrity of the wetland area.

- (c) Frequently Flooded Areas. Floodplains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property. Floodplains help to store and convey storm water and flood water; recharge ground water; provide important areas for riparian habitat; and serve as areas for recreation, education, and scientific study. Development within floodplain areas can be hazardous to those inhabiting such development, and to those living upstream and downstream. Floods also cause substantial damage to public and private property that result in significant costs to the public and individuals.
- (d) Critical Aquifer Recharge Areas. Potable water is an essential life-sustaining element. Aquifer recharge areas provide a source of potable water and contribute to stream discharge during periods of low flow. Certain portions of the City's planning area are susceptible to contamination of drinking water and watercourse supplies through rapid infiltration of pollutants through the soil to ground water aquifers.

Wellhead Protection Zones 1, 2, and 3 are designated as critical aquifer recharge areas under the provisions of the Growth Management Act (Chapter 36.70A RCW) and are established based on proximity to and travel time of groundwater to the City's public water source wells.

- (e) Geologically Hazardous Areas. Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible commercial, residential, or industrial development is sited in or near areas of significant hazard. Some geological hazards can be reduced or mitigated by engineering, design, or modified construction so that risks to health and safety are acceptable. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas should be avoided.

- (4) Identification, regulation and protection of critical areas are necessary to protect the public health, safety and general welfare.
- (5) This section of the RZC contains standards, guidelines, criteria and requirements intended to identify, analyze, preserve and mitigate potential impacts to the City's critical areas and to enhance and restore degraded resources, such as wetlands, riparian stream corridors or habitat, where possible.

#### (C) Applicability – Regulated Activities.

- (1) The provisions of this chapter shall apply to any activity that has a potential to significantly adversely impact a critical area or its established buffer unless otherwise exempt. Such activities include but are not limited to:
  - (a) Removing, excavating, disturbing or dredging soil, sand, gravel, minerals, organic matter or materials of any kind;
  - (b) Dumping, discharging or filling with any material;
  - (c) Draining, flooding or disturbing the water level or water table;
  - (d) Driving pilings or placing obstructions;
  - (e) Constructing, reconstructing, demolishing or altering the size of any structure or infrastructure that results in disturbance of a critical area or the addition of any impervious surface coverage to a site;
  - (f) Destroying or altering vegetation through clearing, grading, harvesting, shading or planting vegetation that would alter the character of a critical area;
  - (g) Activities that result in significant changes in water temperature, physical or chemical characteristics of water sources, including quantity and pollutants; and
  - (h) Any other activity that has a potential to significantly adversely impact a critical area or established buffer not otherwise exempt from the provisions of this chapter;
  - (i) With regard to frequently flooded areas, the provisions of this chapter shall apply to any activity that would result in change to the flood storage capacity of a floodplain or flood fringe area, or cause an increase in the base flood elevation, unless otherwise exempt.

- (2) To avoid duplication, Types I, II, III, IV, V, and VI Permits shall be subject to and coordinated with the requirements of this chapter.
- (3) For the purposes of this chapter, “department” shall mean the City of Redmond Department of Planning and Community Development and “committee” shall mean the City of Redmond Technical Committee.

(D) Exemptions.

- (1) The following activities shall be exempt from the provisions of this chapter:
  - (a) Existing and ongoing agricultural activities provided no alteration of flood storage capacity or conveyance occurs and the activity does not adversely affect critical areas, and existing and ongoing agricultural activities identified in a farm plan approved by both the King County Conservation District and the City;
  - (b) Activities involving artificially created wetlands or streams intentionally created from non-wetland sites, including but not limited to grass-lined swales, irrigation and drainage ditches, detention facilities, and landscape features, except wetlands, streams or swales created as mitigation or that provide habitat for salmonid fishes;
  - (c) Activities occurring in areas of 40 percent slope or greater with a vertical elevation change of up to 10 feet based upon City review of a soils report prepared by a geologist or geotechnical engineer which demonstrates that no significant adverse impact will result from the exemption;
  - (d) Normal and routine maintenance, operation and reconstruction of existing roads, streets, utilities and associated rights-of-way and structures; provided, that reconstruction of any structures may not increase the impervious area, remove flood storage capacity, or further encroach into a critical area or its buffer;
  - (e) Normal maintenance and repair, and reconstruction or remodeling of residential or commercial structures, or legal pre-existing and ongoing uses of the site; provided, that reconstruction of any structures may not increase the size of the previously approved building footprint (see subsection (5) of this section);
  - (f) Site investigative work and studies necessary for preparing land use applications, including soils tests, water quality studies, wildlife studies and similar tests and investigations; provided, that any disturbance of the critical area shall be the minimum necessary to carry out the work or studies and provided that the area is restored to its previous condition;
  - (g) Educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive field trips, and bird watching that will not have a significant adverse effect on the critical area;
  - (h) Emergency activities necessary to prevent an immediate threat to public health, safety or property;
  - (i) Normal and routine maintenance and operation of existing landscaping and gardens provided they comply with all other regulations in this chapter;
  - (j) Construction of pedestrian trails which are permeable, have a maximum width of six feet, and are located in the outer 25 percent of the buffer;
  - (k) Minor activities not mentioned above and determined by the Department to have minimal impacts to a critical area;
  - (l) Previously legally filled wetlands or wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street or highway, or wetlands accidentally created by other human actions within 20 years of the date the development application is filed. The latter shall be documented by the applicant through photographs, statements, and/or other evidence;
  - (m) Activities affecting Category IV wetlands which are 250 square feet in size or smaller and hydrologically isolated;

- (n) Installation, construction, replacement, repair or alteration of utilities and their associated facilities, lines, pipes, mains, equipment or appurtenances in improved City road rights-of-way and provided that the area is restored to its previous condition;
  - (o) Removal of non-native vegetation providing removal is accomplished using hand methods and that removal is in compliance with this chapter. Hand removal does not include using mechanical equipment, such as weed wackers, mowers, power hedge trimmers, or other similar devices. This does not include the use of herbicides.
- (2) Notwithstanding the exemptions provided by this section, any otherwise exempt activities occurring in or near a critical area should meet the purpose and intent of RZC 21.64.010(A) and should consider on-site alternatives that avoid or minimize significant adverse impacts.
  - (3) Exempt activities occurring in flood hazard areas shall not alter flood storage capacity or conveyance.
  - (4) With the exception of subsections (1)(a), (1)(g), (1)(h), and (1)(i) of this section, and normal maintenance and repair of residential and commercial structures as in subsection (1)(e) of this section, no property owner or other entity shall undertake exempt activities prior to providing 10 days' notice to the Department. In case of any question as to whether a particular activity is exempt from the provisions of this section, the Department's determination shall prevail and shall be confirmed in writing within 10 days of receipt of the owner's or applicant's letter. Those persons performing emergency activities falling under subsection (1)(h) of this section shall provide telephone or written communication with the Department within 48 hours of the activity notifying such emergency activity was taken.
  - (5) Structures shall be allowed to be reconstructed if destroyed more than 50 percent of its assessed or appraised value (whichever is greater) if located in a buffer. Reconstruction of the structure shall not further encroach into the buffer area or increase the building footprint. Structures that are nonconforming solely due to the provisions of this chapter shall not be governed by RZC 21.76.100(F), Legal Nonconforming Uses and Structures.

(E) Critical Areas Maps.

- (1) Critical Areas Generally. The following critical areas maps are adopted and included as a part of this chapter:
  - (a) Fish and Wildlife Habitat Conservation Areas;
  - (b) Critical Wildlife Habitat Map Willows/Rose Hill Neighborhood;
  - (c) Streams;
  - (d) Wetlands;
  - (e) Frequently Flooded Areas;
  - (f) Wellhead Protection Zones;
  - (g) Landslide Hazard Areas;
  - (h) Erosion Hazard Areas; and
  - (i) Seismic Hazard Areas.
- (2) These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of critical areas shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail.

(F) Relationship to Other Regulations.

- (1) These critical area regulations shall apply as an overlay and in addition to zoning, land use and other regulations established by the City of Redmond. In the event of any conflict between these regulations and any other regulations of the City, the regulations which provide greater protection to environmentally critical areas shall apply.
- (2) Areas characterized by particular critical areas may also be subject to other regulations established by this chapter due to the overlap or multiple functions of some sensitive or critical areas. Wetlands, for example, may be defined and regulated according to the wetland and fish and wildlife habitat conservation area provisions of this chapter. In the event of any conflict between regulations for particular critical areas in this chapter, the regulations which provide greater protection to environmentally critical areas shall apply.
- (3) Compliance with the provisions of this chapter does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required.

(G) Permit Process and Application Requirements.

- (1) Pre-Application Conference. All applicants are encouraged to meet with the City prior to submitting an application subject to this section. The purpose of this meeting shall be to discuss the City's critical area requirements, processes and procedures; to review any conceptual site plans prepared by the applicant; to identify potential impacts to critical areas and appropriate mitigation measures; and to generally inform the applicant of any federal or state regulations applicable to the subject critical area. Such conference shall be for the convenience of the applicant and any recommendations shall not be binding on the applicant or the City. The pre-application conference provided for in this section shall be consolidated with any pre-application conference held on any land use permit application.
- (2) Application Requirements.
  - (a) Timing of Submittals. A critical areas report, if applicable, must be submitted to the City during application submittal. This is a required component of determining application completeness. The purpose of the report is to determine the extent, characteristics and functions of any critical areas located on or that have a potential to be significantly adversely impacted by activities on a site where regulated activities are proposed. The report will also be used by the City to assist in the determination of the appropriate critical area rating and establishment of appropriate buffer requirements in accordance with this chapter.
  - (b) Critical Areas Report Contents. Reports and studies required to be submitted by this chapter shall contain the information indicated in Appendix 1 of the Zoning Code, Critical Areas Reporting Requirements, applicable to each critical area.
- (3) Consultant Qualifications and City Review. All reports and studies required of the applicant by this section shall be prepared by a qualified consultant as that term is defined in the Chapter 21.78 of the Zoning Code, Definitions. The City may, at its discretion and at the applicant's expense, retain a qualified consultant to review and confirm the applicant's reports, studies and plans.
- (4) Permit Process. This section is not intended to create a separate critical areas permit process for development proposals. The City shall consolidate and integrate the review and processing of critical areas aspects of proposals with other land use and environmental considerations and approvals.

(H) Alteration or Development of Critical Areas – Standards and Criteria.

Standards and criteria are set forth in subsequent sections of this chapter.

(I) General Mitigation Standard.

- (1) All significant adverse impacts to critical areas functions and values shall be mitigated. Mitigation actions by an applicant or property owner shall occur in the following sequence:
  - (a) Avoiding the impact altogether by not taking a certain action or parts of actions;

- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
- (c) Rectifying the impact to the critical area by repairing, rehabilitating, or restoring the affected environment to the conditions existing at the time of the initiation of the project;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- (e) Compensating for the impact by replacing or providing substitute resources or environments; and/or
- (f) Monitoring the hazard or other required mitigation and taking remedial action when necessary.

(J) Other Appropriate Mitigation Actions.

Where impacts cannot be avoided, and the applicant has exhausted feasible design alternatives, the applicant or property owner shall seek to implement other appropriate mitigation actions in compliance with the intent, standards and criteria of this chapter. In an individual case, these actions may include consideration of alternative site plans and layouts, reductions in the density or scope of the proposal, and/or implementation of the performance standards listed in subsequent sections of this chapter.

(K) Proposed Developments.

Development proposed in critical areas shall incorporate and reflect the performance standards contained in subsequent sections of this chapter.

(L) Mitigation Standards, Criteria and Plan Requirements.

(1) Mitigation Performance Standards. Significant adverse impacts to critical area functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in RZC 21.64.010(I). Proposals which include less preferred and/or compensatory mitigation shall demonstrate that:

- (a) All feasible and reasonable measures will be taken to reduce impacts and losses to the critical area or to avoid impacts where avoidance is required by these regulations; and
- (b) The restored, created or enhanced critical area or buffer will be as viable and persistent as the critical area or buffer area it replaces; and
- (c) In the case of wetlands and riparian stream corridors, no overall net loss will occur in wetland or riparian stream corridor functions and values.

(2) Location and Timing of Mitigation.

- (a) Mitigation shall be provided on-site, unless on-site mitigation is not scientifically feasible due to physical features of the property. The burden of proof shall be on the applicant to demonstrate that mitigation cannot be provided on-site.
- (b) When mitigation cannot be provided on-site, mitigation shall be provided in the immediate vicinity of the permitted activity on property owned or controlled by the applicant, such as an easement, provided such mitigation is beneficial to the critical area and associated resources.
- (c) In-kind mitigation shall be provided except when the applicant demonstrates and the Department concurs that greater functional and habitat value can be achieved through out-of-kind mitigation.
- (d) Only when it is determined by the Department that subsections (2)(a), (b) and (c) of this section are inappropriate and impractical shall off-site, out-of-kind mitigation be considered.



- (e) When wetland or riparian stream corridor mitigation is permitted by these regulations on-site or off-site, the mitigation project shall occur near an adequate water supply (river, stream, ground water, storm water facility outfall) with a hydrologic connection to the critical area to ensure successful development or restoration.
- (f) Any agreed upon mitigation proposal shall be completed concurrently with project construction, unless a phased schedule that assures completion prior to occupancy has been approved by the Department.
- (g) Wetland acreage replacement ratios shall be as specified in RZC 21.64.030(C)(7)(b) of the Zoning Code.
- (h) Restored or created riparian stream corridors, where permitted by these regulations, shall be an equivalent or higher riparian stream corridor value or function than the altered riparian stream corridor.
- (i) All off-site mitigation shall be provided within the Redmond city limits.

(M) Performance Standards for Mitigation Planning.

The performance standards noted in subsequent sections of this chapter shall be incorporated into mitigation plans submitted to the City for impacts to critical areas. Mitigation plans shall contain the information indicated in Appendix 1 of the Zoning Code, Critical Areas Reporting Requirements.

(N) Approved Mitigation Projects – Signature.

On completion of construction, any approved mitigation project must be signed off by the applicant's qualified consultant and approved by the Department. Signature will indicate that the construction has been completed as planned.

(O) Approved Mitigation Projects – Contingency Planning.

Approved mitigation projects shall implement the monitoring and contingency planning requirements of Section 21.64.010(P) of the Zoning Code.

(P) Monitoring Program and Contingency Plan.

- (1) A monitoring program shall be implemented by the applicant to determine the success of the mitigation project and any necessary corrective actions. This program shall determine if the original goals and objectives are being met.
- (2) A contingency plan shall be established for correction in the event that the mitigation project is inadequate or fails. A performance and maintenance bond or other acceptable security device is required to ensure the applicant's compliance with the terms of the mitigation agreement. The bond or other security shall meet the requirements set forth in RZC 21.76.090(F).
- (3) Monitoring programs prepared to comply with this chapter shall reflect the following guidelines:
  - (a) Use scientific procedures for establishing the success or failure of the project;
  - (b) For vegetation determinations, permanent sampling points shall be established;
  - (c) Vegetative success equals 80 percent per year survival of planted trees and 80 percent cover of shrubs, groundcover and emergent species and less than 20 percent cover of invasive species;
  - (d) Submit monitoring reports on the current status of the mitigation project to the Department. The reports are to be prepared by a qualified consultant and reviewed by the City and shall be produced on the following schedule: 30 days after planting; early in the growing season of the second year; end of the growing season of the second year; and annually thereafter;
  - (e) The monitoring reports shall contain the following information on monitoring method and monitoring components, as relevant:

- (i) Vegetation Monitoring: Methods shall include counts, photo points, random sampling, sampling plots, transects, visual inspections, and/or other means deemed appropriate by the Department and a qualified consultant. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, invasive weeds, and/or other components deemed appropriate by the Department and a qualified consultant.
- (ii) Water Quantity Monitoring: Methods shall include piezometers, sampling points, stream gauges, visual observation, and/or other means deemed appropriate by the Department and a qualified consultant. Water quantity monitoring components shall include water level, peak flows, soil saturation depth, soil moisture within root zone, inundation, overall water coverage, and/or other components deemed appropriate by the Department and a qualified consultant.
- (iii) Water Quality Monitoring: Methods shall include testing, plant indicators, and/or other means deemed appropriate by the Department and a qualified consultant. Water quality monitoring components shall include temperature, pH, dissolved oxygen, total suspended solids, total metals, herbicides, pesticides, and/or other components deemed appropriate by the Department and a qualified consultant.
- (iv) Wildlife Monitoring: Methods shall include visual sightings, aural observations, nests, scat, tracks, and/or other means deemed appropriate by the Department and a qualified consultant. Wildlife monitoring components shall include species counts, species diversity, breeding activity, habitat type, nesting activity, location, usage, and/or other components deemed appropriate by the Department and a qualified consultant.
- (v) Geomorphic Monitoring: Methods shall include cross-sectional surveys, profile surveys, point surveys, photo-monitoring, and/or other means deemed appropriate by the Department and a qualified consultant. Monitoring components shall include location and effect of large woody debris, depth and frequency of pools, bank erosion, channel migration, sediment transport/deposition, structural integrity of weirs, and/or other components deemed appropriate by the Department and a qualified consultant.
- (f) Monitoring programs shall be established for a minimum of five years;
- (g) If necessary, correct for failures in the mitigation project;
- (h) Replace dead or undesirable vegetation with appropriate plantings;
- (i) Repair damages caused by erosion, settling, or other geomorphological processes to all affected properties and structures, both on and off the property;
- (j) Redesign mitigation project (if necessary) and implement the new design; and
- (k) Correction procedures shall be approved by a qualified consultant and the Department.

(Q) Buffer Areas.

- (1) The establishment of buffer areas may be required for development proposals and activities in or adjacent to critical areas. The purpose of the buffer shall be to protect the integrity, function, value and resource of the subject critical area, and/or to protect life, property and resources from risks associated with development on unstable or sensitive lands. Buffers shall consist of an undisturbed area of native vegetation established to achieve the purpose of the buffer. If the site has previously been disturbed, the buffer area shall be revegetated pursuant to an approved planting plan. Buffers shall be protected during construction by placement of a temporary barricade, on-site notice for construction crews of the presence of the critical area, and implementation of appropriate erosion and sedimentation controls.
- (2) Required buffer widths shall reflect the sensitivity of the particular critical area and resource or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.
- (3) See individual critical areas regulations in Sections 21.64.020(B), 21.64.030(B), and 21.64.060(B) of the Zoning Code for required buffer widths.

- (4) A residential lot approved in a subdivision that has designated streams or wetlands and their associated buffer in either a Native Growth Protection Area or Native Growth Protection Easement established at plat approval shall be allowed to be improved honoring the wetland and stream buffers already established in the plat.

(R) General Critical Area Protective Measures.

(1) Critical Area Markers and Signs.

- (a) The boundary at the outer edge of critical areas tracts and easement shall be delineated with permanent survey stakes, using iron or concrete markers as established by local survey standards.
- (b) The boundary at the outer edge shall be identified with temporary signs prior to any site disturbance. The temporary signs shall be replaced with permanent signs prior to occupancy or use of the site. The number and spacing of permanent signs shall be designated by the Planning Department.

(2) Critical Area Fencing. In order to inform subsequent purchasers of real property of the location of the critical area buffer boundaries and to discourage encroachment into that buffer, the developer of the property shall install split-rail fencing or a similar fencing approved by the Department along the boundary of the critical area.

(3) Notice on Title.

- (a) In order to inform subsequent purchasers of real property of the existence of critical areas, the owner of any property containing a critical area or buffer on which a development proposal is submitted shall file a notice with the King County Department of Records and Elections. The notice shall state the presence of the critical area or buffer on the property, of the application of the Critical Areas Ordinance to the property, and the fact that limitations on actions in or affecting the critical area or buffer may exist. The notice shall run with the land.
- (b) The applicant shall submit proof that the notice has been filed for public records before the City approves a building permit or, in the case of subdivision of land or binding site plans, at or before recording.

(4) Critical Areas Tracts.

- (a) Critical areas tracts, or other mechanisms as deemed appropriate by the Department, shall be used to delineate and protect contiguous critical areas and buffers. Areas in critical areas tracts can be included in determining gross site density, floor area ratios, and other area and dimensional regulations for five or fewer lots. Critical area tracts may not be used through the preliminary plat process to credit lot area and dimensional regulations for proposed residential lots.
- (b) Critical areas tracts shall be recorded on all documents of title or record for all affected lots.
- (c) Critical areas tracts shall be designated on the face of the plat or recording drawing in a format provided by the City Attorney.
- (d) The City may require that any required critical areas tract be held in an undivided interest by each owner of a building lot within the development with the ownership interest passing with the ownership of the lot, or held by an incorporated homeowner's association, or other legal entity which assures the ownership, maintenance, and protection of the tract.

(S) Critical Areas Reasonable Economic Use Exception - Private Property.

These standards and regulations are not intended, and shall not be construed or applied in a manner, to deny all reasonable economic use of private property. Any private property owner who claims that strict application of these standards would deny all reasonable economic use of their property may apply for an exception under Section 21.76.070(U)(3), Critical Areas Reasonable Economic Use Exception - Private Property.

(T) Critical Areas Reasonable Use Exception - Public Project.

- (1) Any public agency or City department claiming that strict application of these standards would deny construction of a public project may apply for a Critical Areas Reasonable Use Exception - Public Project under Section 21.76.070(U)(4) of the Zoning Code.

## 21.64.020 Fish and Wildlife Habitat Conservation Areas

### (A) Classification and Rating of Fish and Wildlife Habitat Conservation Areas.

#### (1) The Growth Management Act identifies fish and wildlife habitat conservation areas. These areas include:

- (a) Areas with which species of concern have a primary association.
  - (i) Federally designated endangered and threatened species are those fish and wildlife species identified by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that are in danger of extinction or threatened to become endangered. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted as necessary for current listing status.
  - (ii) State-designated endangered, threatened, and sensitive species are those fish and wildlife species native to the State of Washington, identified by the Washington State Department of Fish and Wildlife, that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State-designated endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species), and WAC 232-12-011 (state threatened and sensitive species). The Washington State Department of Fish and Wildlife maintains the most current listing and should be consulted as necessary for current listing status. Included, also, are state candidate species which include fish and wildlife species that the Washington Department of Fish and Wildlife will review for possible listing as endangered, threatened, or sensitive.
- (b) State priority habitats and areas associated with state priority species. Priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the Washington State Department of Fish and Wildlife.
- (c) Habitats and species of local importance. Habitats and species of local importance are those identified by the City of Redmond, including those that possess unusual or unique habitat warranting protection because of qualitative species diversity or habitat system health indicators. The City Council shall formally designate habitats and species of local importance, if any, through the Zoning Code amendment process.
- (d) Naturally occurring ponds under 20 acres. Naturally occurring ponds are those ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.
- (e) Waters of the state. Waters of the state includes lakes, rivers, ponds, streams, inland waters, underground waters, and other surface waters and watercourses within the jurisdiction of the State of Washington, as classified in WAC 222-16-031.
- (f) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
- (g) Land essential for preserving connections between habitat blocks and open spaces.

#### (2) To promote consistent application of the standards and requirements of this chapter, fish and wildlife habitat conservation areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

- (a) Core Preservation Areas. Core preservation areas include those areas of the City which are already protected through other regulatory mechanisms. They include native growth protection easements, Class I streams and their buffers, and Class II through IV streams, and other areas similarly protected. They may also include lands where development rights have been sold and some lands with recorded open space easements,

depending on the purpose of the easement. The core preservation area includes wetlands and streams and their associated buffers as they become identified at a site-specific level.

- (b) Species Protection. Species of concern, priority species, and species of local importance shall be protected through management recommendations. "Species of concern" includes those species listed as state endangered, threatened, sensitive, or candidate, as well as those species listed or proposed for listing by the federal government. Priority species are those species considered to be priorities for conservation and management and are identified in the Washington Department of Fish and Wildlife Priority Habitat and Species (PHS) List. In Redmond, "species of local importance" refers to the Great Blue Heron.
- (c) Quality Habitat Areas. As sites are assessed for development, the Department shall evaluate each site for the presence of quality habitat using the following methodology. Sites will be qualitatively scored based upon several parameters indicative of habitat qualities. These parameters include size, community diversity, interspersions (spatial patterns), continuity, forest vegetation layers, forest age, and invasive plants. This assessment will allow the City to identify remaining quality habitat in the City, to protect remaining quality habitat by imposition of the performance standards outlined in RZC 21.64.020(G) so long as there is no significant adverse economic impact to the developer, and to provide incentives to preserve such quality habitat.
- (d) Riparian Stream Corridors. Riparian stream corridors include Class I through IV streams and adjacent riparian habitat areas (stream buffers). Streams shall be designated Class I, Class II, Class III, and Class IV according to the criteria in this subsection. When more than one classification is present in short alternating segments on the property in question, it will be classified according to the stream class which is more restrictive.
  - (i) "Class I" streams are those streams identified as "Shorelines of the State" under the City of Redmond Shoreline Master Program.
  - (ii) "Class II" streams are those natural streams that are not Class I and are either perennial or intermittent and have salmonid fish use or the potential for salmonid fish use.
  - (iii) "Class III" streams are those natural streams that are not Class I or Class II and are either perennial or intermittent and have one of the following characteristics:
    - (A.) Nonsalmonid fish use or the potential for non-salmonid fish use; or
    - (B.) Headwater streams with a surface water connection to salmon bearing or potentially salmon bearing streams (Class I or II).
  - (iv) "Class IV" streams are those natural streams that are not Class I, Class II, or Class III. They are either perennial or intermittent, do not have fish or the potential for fish, and are non-headwater streams.
  - (v) Intentionally Created Streams. These are manmade streams defined as such in these regulations and do not include streams created as mitigation. Purposeful creation must be demonstrated to the Committee through documentation, photographs, statements and/or other evidence. Intentionally created streams may include irrigation and drainage ditches, grass-lined swales, or other artificial watercourses unless they are used by salmonid fish or created for the purpose of stream mitigation.
- (e) Classification of fish and wildlife habitat conservation areas shall be determined by the Department based on consideration of the following factors:
  - (i) Maps adopted pursuant to this chapter, including the fish and wildlife habitat conservation area core preservation areas map, Critical Area Wildlife Habitat Willows/Rose Hill Neighborhood Map, and stream classification map. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of fish and wildlife habitat conservation areas and streams shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;
  - (ii) Department of Fish and Wildlife priority habitat and species maps;

- (iii) Anadromous and resident salmonid distribution maps contained in the habitat-limiting factors reports published by the Washington State Conservation Commission;
- (iv) Federal and state information and maps related to species of concern;
- (v) Application of the criteria contained in these regulations; and
- (vi) Consideration of the technical reports submitted by qualified consultants in connection with the applications subject to these regulations.

(B) Stream Buffers.

- (1) Stream buffers shall be sufficiently wide to achieve the full range of riparian and aquatic ecosystem functions, which include, but are not limited to, protection of instream fish habitat through control of temperature and sedimentation in streams; preservation of fish and wildlife habitat; and connection of riparian wildlife habitat to other habitats.
- (2) Stream buffers shall be measured from the ordinary high water mark.
- (3) The following stream buffers are established for streams:

Riparian Stream Corridor Classification	Stream Buffer Width (feet)
Class I <ul style="list-style-type: none"> <li>• Sammamish River north of PSE powerline crossing</li> <li>• Sammamish River south of PSE powerline crossing</li> <li>• Bear Creek west of Avondale Road</li> <li>• Bear Creek east of Avondale Road</li> <li>• Evans Creek</li> </ul>	<ul style="list-style-type: none"> <li>• 150' inner buffer + 50' outer buffer</li> <li>• 150'</li> <li>• 150'</li> <li>• 150' inner buffer + 50' outer buffer</li> <li>• 150' inner buffer + 50' outer buffer</li> </ul>
Class II	100' + 50' outer buffer
Class III	100'
Class IV <ul style="list-style-type: none"> <li>• Perennial</li> <li>• Intermittent</li> </ul>	<ul style="list-style-type: none"> <li>• 36'</li> <li>• 25'</li> </ul>

- (4) Increased Stream Buffer Widths. The recommended stream buffer widths may be increased as follows:
  - (a) When the Department determines that the recommended width is insufficient to prevent habitat degradation and to protect the structure and functions of the habitat areas;
  - (b) When the frequently flooded area exceeds the recommended stream buffer width, the stream buffer shall extend to the outer edge of the frequently flooded area;
  - (c) When the stream buffer is within a landslide hazard area or its buffer, the stream buffer shall be the recommended distance, or the landslide hazard area buffer, whichever is greater. Similarly if the stream

buffer is within an erosion hazard area, the stream buffer shall be the recommended distance or the extent of the erosion hazard area.

- (5) **Reduced Stream Buffer Widths.** Stream buffer widths must meet the required width as described in the table in subsection (3) of this section. This does not refer to stream buffer width averaging. See below provisions under which stream buffer width averaging is permitted.
- (6) **Stream Buffer Width Averaging.** The Administrator may allow the recommended stream buffer width to be reduced in accordance with best available science only if:
  - (a) The width reductions will not reduce stream or habitat functions, including those of non-fish habitat;
  - (b) The width reduction will not degrade the habitat, including habitat for salmonid fisheries;
  - (c) The proposal will provide additional habitat protection;
  - (d) The total area contained in the stream buffer area after averaging is no less than that which would be contained within the standard stream buffer area; and
  - (e) The buffer width is not reduced to less than 25 percent of the standard stream buffer width or 25 feet, whichever is greater.
- (7) **For II streams, buffer averaging may be applied to the inner buffer.** The following provisions apply to the inner buffer:
  - (a) The width of the inner buffer shall not be reduced below 75 percent of the required inner buffer width at any point;
  - (b) Encroachment shall not occur into the buffer of an associated wetland;
  - (c) The area of the inner buffer after averaging shall be equivalent to the area of the inner buffer prior to averaging;
  - (d) There is a net improvement in overall buffer ecological functions; and
  - (e) Averaging shall not preclude the opportunity for future recovery of structure and function.
- (8) **For Class I and II streams, maximum clearing and grading within the outer 50-foot buffer is 35 percent of the outer buffer area.** Nothing in this provision shall be construed to require remediation of existing situations where the current clearing and grading is in excess of 35 percent. No net effective impervious surface may be created within this area.
- (9) **No structures or improvements shall be permitted within the stream buffer, including buildings, decks, and docks, except as otherwise permitted or required under the City's adopted Shoreline Master Program, or under one of the following circumstances:**
  - (a) When the improvements are part of an approved rehabilitation or mitigation plan; or
  - (b) For construction of new road crossings and utilities, and accessory structures, when no feasible alternative location exists; or
  - (c) Trails, according to the following criteria:
    - (i) Constructed of permeable materials;
    - (ii) Designed to minimize impact on the stream system;
    - (iii) Of a maximum trail corridor width of six feet; and

- (iv) Located within the outer half of the buffer; i.e., the portion of the buffer that is farther away from the stream;

See also RZC 21.68.180, Shoreline Access, for trail construction in shorelines of the state;

- (d) Footbridges; or

- (e) Minor educational facilities, such as informational signs; or

- (f) Storm water conveyance systems, provided that they are designed to maintain the buffers' functions and values; or

- (g) When improvements are part of an approved plan consistent with the no net effective impervious surface provisions of (8) above.

- (10) Businesses currently located in the stream buffers may continue to operate. A nonconforming use may be expanded provided the expansion does not create significant additional impacts to the stream buffers. Nonconforming structures may be maintained and repaired and may be enlarged or expanded provided said enlargement does not extend the structure closer to the riparian stream corridor.

- (11) Where an approved City capital improvement project moves the ordinary high water mark of a stream from its pre-project location, the buffer width for adjacent properties shall continue to be measured from the pre-capital improvement project ordinary high water mark.

- (12) Nothing in this section shall be construed to require the removal of existing structures within stream buffers.

(C) Alteration of Fish and Wildlife Habitat Conservation Areas – Generally.

Alteration of fish and wildlife habitat conservation areas may only be permitted subject to the criteria in Sections 21.64.020(E) and 21.64.020(F), 21.64.020(C), 21.64.040(C), 21.64.050(C), and 21.64.020(D) of the Zoning Code.

(D) Alteration of Riparian Stream Corridors.

- (1) Relocation of a Class I, II, or III riparian stream corridor in order to facilitate general site design will not be allowed. Relocation of these riparian stream corridors may take place only when it is part of an approved mitigation or rehabilitation plan, will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream.

- (2) Bridges shall be used to cross Class I streams.

- (3) Culverts are allowable only under the following circumstances:

- (a) Only in Class II, III, and IV streams;

- (b) When fish passage will not be impaired;

- (c) When the design criteria of the Washington State Department of Fish and Wildlife, Design of Road Culverts for Fish Passage, 2003, are met; and

- (d) The applicant or successors shall, at all times, keep any culvert free of debris and sediment to allow free passage of water and, if applicable, fish.

- (4) Stream-bank stabilization to protect new structures from future channel migration is not permitted except when such stabilization is achieved through bioengineering or soft armoring techniques in accordance with an approved critical areas report.

- (5) Construction of roads and minor road bridging may be permitted in accordance with an approved critical areas report subject to the following:

- (a) There is no other feasible alternative route with less impact on the environment;



- (b) The crossing minimizes interruption of downstream movement of wood and gravel;
  - (c) Roads in riparian habitat areas shall not run parallel to the water body;
  - (d) Crossings, where necessary, shall only occur as near to perpendicular with the water body as possible;
  - (e) Mitigation for impacts is provided pursuant to an approved mitigation plan; and
  - (f) Road bridges are designed according to the Department of Fish and Wildlife Design of Culverts for Fish Passage, 2003, and the National Marine Fisheries Service Guidelines for Salmonid Passage at Stream Crossings, 2000.
- (6) The City may require that a stream be removed from a culvert as a condition of approval, unless the culvert is not detrimental to fish habitat or water quality, or removal would be detrimental to fish or wildlife habitat or water quality.

(E) Alteration of Fish and Wildlife Habitat Conservation Areas.

- (1) Alterations that create adverse impacts to core preservation areas shall be avoided, subject to Section 21.64.010(S), Critical Areas Reasonable Economic Use Exception - Private Project, and Section 21.64.010(T), Critical Areas Reasonable Use Exception - Public Project.
- (2) Species Protection. Species management recommendations for development impacting species of concern, priority species, and species of local importance shall be implemented. Management recommendations are based on the following factors: species recommendations of the Washington State Department of Fish and Wildlife; recommendations contained in the wildlife study submitted by a qualified consultant; and the nature and intensity of land uses and activities occurring on the site and on adjacent sites.
- (3) Alteration of Quality Habitat Areas. Fish and Wildlife Habitat Conservation Area Performance Standards, Section 21.64.020(G), shall apply to quality habitat areas unless application of such standards would result in a significant adverse economic impact on the owner or developer.

(F) Riparian Stream Corridor Performance Standards.

The following standards apply to riparian stream corridor restoration and enhancement:

- (1) Use plants indigenous to the region (not introduced or foreign species);
- (2) Use plants adaptable to a broad range of water depths;
- (3) Plants should be commercially available or available from local sources;
- (4) Plant species high in food and cover value for fish and wildlife must be used;
- (5) Plant mostly perennial species;
- (6) Avoid committing significant areas of the site to species that have questionable potential for successful establishment;
- (7) Plant selection must be approved by a qualified consultant;
- (8) Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials;
- (9) Planting densities and placement of plants should be determined by a qualified consultant and shown on the design plans;
- (10) The planting plan must be approved by the Department;

- (11) Confine stockpiling to upland areas and ensure contract specifications should limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the Committee;
- (12) Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;
- (13) Apply controlled-release nonphosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);
- (14) Install an irrigation system, if necessary, for the initial establishment period;
- (15) Construction specifications and methods must be approved by a qualified consultant and the Department;
- (16) Construction management should occur by a qualified consultant and be inspected by the City; and
- (17) Limit the use of pesticides near streams.

(G) Fish and Wildlife Habitat Conservation Area Performance Standards.

The following standards shall apply to all sites where a species protected under this chapter has been identified. These standards shall also apply to sites where quality habitat has been identified unless application of any of these standards would result in a significant adverse economic impact on the owner or developer.

- (1) Relevant performance standards from Sections 21.64.020(F) and 21.64.030(D) of the Zoning Code, as determined by the Department, shall be incorporated into mitigation plans.
- (2) The following additional mitigation measures shall be reflected in mitigation planning:
  - (a) Consider habitat in site planning and design;
  - (b) Locate buildings and structures in a manner that preserves and minimizes adverse impacts to important habitat areas;
  - (c) Integrate retained habitat into open space and landscaping, consistent with the provisions of Section 21.32 of the Zoning Code;
  - (d) Where possible, consolidate habitat and vegetated open space in contiguous blocks;
  - (e) Locate habitat contiguous to other habitat, open space or landscaped areas to contribute to a continuous system or corridor that provides connections to adjacent habitat areas;
  - (f) Use native species in any landscaping of disturbed or undeveloped areas and in any enhancement of habitat or buffers;
  - (g) Emphasize heterogeneity and structural diversity of vegetation in landscaping;
  - (h) Remove and/or control any noxious weeds or animals as defined by the City; and
  - (i) Preserve significant trees, preferably in groups, consistent with Section 20D.80.20 and with achieving the objectives of these standards.
- (3) Landscape plan shall be submitted consistent with the requirements of RZC 21.32.040 and with the goals and standards of this chapter. The plan shall reflect the report prepared pursuant to RZC 21.64.010(G).

## 21.64.030 Wetlands

### (A) Classification and Rating of Wetlands.

To promote consistent application of the standards and requirements of this chapter, wetlands within the City of Redmond shall be classified according to their characteristics, function and value, and/or their sensitivity to disturbance. Wetlands shall be rated and regulated according to the categories defined by the Washington State Department of Ecology Wetland Rating System for Western Washington (Ecology Publication No. 04-06-025) as revised. This document contains the methods for determining the wetland category.

(1) Wetland Classification. Wetlands, as defined by this chapter, shall be designated Category I, Category II, Category III, and Category IV.

(a) Category I wetlands are those wetlands that represent a unique or rare wetland type, are more sensitive to disturbance than most wetlands, are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or provide a high level of functions. All wetlands with one or more of the following criteria shall be considered a Category I wetland:

(i) Wetlands that are identified by scientists of the Washington Natural Heritage Program/DNE as high-quality, relatively undisturbed wetlands, or wetlands that support state-listed threatened or endangered plants; or

(ii) Bogs; or

(iii) Mature and old-growth forested wetlands over one acre in size; or

(iv) Wetlands that provide a very high level of functions as evidenced by a score of 70 points or more on the Western Washington Rating System form.

(b) Category II wetlands are those wetlands that provide high levels of some functions which are difficult to replace. Category II wetlands meet the following criteria:

(i) Wetlands scoring between 51 to 69 points on the Western Washington Rating System form; or

(ii) Wetlands that do not meet the criteria of Category I.

(c) Category III wetlands are those wetlands that provide a moderate level of functions. They are typically more disturbed and have less diversity or are more isolated from other natural resources in the landscape. Category III wetlands meet the following criteria:

(i) Wetlands scoring between 30 to 50 points on the Western Washington Rating System form; or

(ii) Wetlands that do not meet the criteria of Category I.

(d) Category IV wetlands are those wetlands that provide the lowest level of function. These wetlands score less than 30 points on the Western Washington Rating System form.

(2) Classification of wetlands shall be determined by the Committee based on consideration of the following factors:

(a) Maps adopted pursuant to this chapter, including the wetland map, which identifies the approximate location and extent of wetlands. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of wetlands shall be determined in the field by a qualified consultant according to the procedures, definition, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;

(b) National Wetlands Inventory Maps prepared by the U.S. Fish and Wildlife Service;

(c) Application of the criteria contained in these regulations; and

- (d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

(B) Wetland Buffers.

- (1) Required buffer widths shall reflect the sensitivity of the particular wetland or the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the critical area.
- (2) Wetland buffers shall be measured from the wetland edge as delineated and marked in the field. Wetland buffers shall be established as follows:

Wetland Category and Characteristics	Buffer Width (feet) by Impact of Land Use* (see below)	Other Measures Recommended for Protection
<b>Category I</b>		
Forested	Buffer size to be based on score for habitat functions or water quality functions.	If forested wetland scores high for habitat, need to maintain connectivity to other natural areas. Restore degraded parts of buffer.
High level of function for habitat (score for habitat 29 – 36 pts.)	Low: 150 Moderate: 225 High: 300	Maintain connectivity to other natural areas. Restore degraded parts of buffer.
Moderate level of function for habitat (score for habitat 20 – 28 pts.)	Low: 75 Moderate: 110 High: 150	No recommendations at this time.
High level of function for water quality improvement (24 – 32 pts.) and low for habitat (less than 20 pts.)	Low: 50 Moderate: 75 High: 100	No additional discharges of untreated runoff.
Not meeting any of the above criteria	Low: 50 Moderate: 75 High: 100	No recommendations at this time.
<b>Category II</b>		
High level of function for habitat (score for habitat 29 – 36 pts.)	Low: 150 Moderate: 225 High: 300	Maintain connectivity to other natural areas.

Moderate level of function for habitat (score for habitat 20 – 28 pts.)	Low: 75 Moderate: 110 High: 150	No recommendations at this time.
High level of function for water quality improvement and low for habitat (score for water quality 24 – 32 pts.; habitat less than 20 pts.)	Low: 50 Moderate: 75 High: 100	No additional discharges of untreated runoff.
Not meeting above criteria	Low: 50 Moderate: 75 High: 100	No recommendations at this time.
Category III		
Moderate level of function for habitat (score for habitat 20 – 28 pts.)	Low: 75 Moderate: 110 High: 150	No recommendations at this time.
Not meeting above criteria	Low: 40 Moderate: 60 High: 80	No recommendations at this time.
Category IV		
Score for functions less than 30 pts.	Low: 25 Moderate: 40 High: 50	No recommendations at this time.

\* Consistent with the Department of Ecology classification system identified above, high-, medium- and low-impact land uses are defined as follows:

- (a) High-impact land uses include: commercial, industrial, institutional, retail sales, high-intensity recreation (golf courses, ball fields), and residential uses with a density of more than one dwelling unit per acre.
  - (b) Medium-impact land uses include residential uses with a density of one unit per acre or less, moderate-intensity open space (parks), and paved trails.
  - (c) Low-impact land uses include: low-intensity open space (such as passive recreation and natural resources preservation) and unpaved trails.
- (3) The buffer for a wetland created, restored, or enhanced as compensation for approved wetland alterations shall be that required for the category of the wetland.

- (4) Increased Buffer Widths. The Department may extend the width of the buffer in accordance with the recommendations of a qualified wetland professional and the best available science on a case-by-case basis when a larger buffer is necessary to protect wetland functions and values based on site-specific characteristics.
- (5) Reduction of Buffer Widths. The Department may allow the standard wetland buffer width to be reduced in accordance with the best available science on a case-by-case basis when it is determined that a smaller area is adequate to protect the wetland functions and values based on site-specific characteristics.
- (a) Reduction in buffer width based on reducing the intensity of impacts from proposed land uses. The buffer widths recommended for land uses with high-intensity impacts to wetlands can be reduced to those widths recommended for moderate-intensity impacts under the following conditions:
- (i) For wetlands that score moderate or high for habitat (20 points or more), the width of the buffer around the wetland can be reduced if both of the following criteria are met:
- (A.) A relatively undisturbed vegetated corridor at least 100 feet wide is protected between the wetlands and any other priority habitats as defined by the Washington State Department of Fish and Wildlife. The corridor must be protected for the entire distance between the wetland and the priority habitat via some type of legal protection such as a conservation easement; and
- (B.) Measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.
- (ii) For wetlands that score less than 20 points for habitat, the buffer width can be reduced to that required for moderate land use impacts if measures to minimize the impacts of different land uses on wetlands, such as those developed by the Department of Ecology under BAS, are applied.
- (b) Reductions in buffer widths where existing roads or structures lie within the buffer. Where a legally established, nonconforming use of the buffer exists, proposed actions in the buffer may be permitted as long as they do not increase the degree of nonconformity. In terms of wetlands, this means no increase in the impacts to the wetland from activities in the buffer.
- (c) Subsection (7) below does not apply when using this reduction in buffer width provision.
- (6) Wetland Buffer Width Averaging. Wetland buffer widths may be modified by averaging buffer widths as set forth herein. The Department may allow modification of the standard wetland buffer width in accordance with the best available science on a case-by-case basis by averaging buffer widths. Averaging buffer widths may only be allowed where a qualified wetland professional demonstrates that:
- (a) It will not reduce the functions or values;
- (b) The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation, and the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places;
- (c) The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; and
- (d) The buffer width is not reduced more than 25 percent of the width or 50 feet, whichever is less, except for buffers between Category IV wetlands and low- or moderate-intensity land uses.
- (7) Buffer widths may be reduced by buffer width reduction or buffer width averaging as stated above. However, the use of either of these mechanisms or a combination of these mechanisms shall not result in a buffer width less than 75 percent of the standard buffer required as identified in subsection (2) of this section.
- (8) Storm water management facilities, such as biofiltration swales and outfalls, may be located within the outer 25 percent of the buffer; provided, that no other location is feasible, and the location of such facilities will not degrade the functions or values of the wetland. Storm water ponds must be located outside of the required buffer. Underground vaults are also permitted within the outer 25 percent of the buffer provided that the maintenance access area lies outside of the buffer and the area above the vault is planted with native vegetation.

(C) Alteration of Wetlands.

- (1) Wetland alteration shall result in no net loss of wetland area, except where the following criteria are met:
  - (a) The lost wetland area provides minimal functions and the mitigation action(s) results in a net gain in wetland functions as determined by a site-specific assessment; or
  - (b) The lost wetland area provided minimal functions as determined by a site-specific functional assessment and other replacement habitats provide greater benefits to the functioning of the watershed, such as riparian habitat restoration and enhancement.
- (2) Category I Wetlands. Alterations of Category I wetlands shall be prohibited subject to the reasonable use provisions of this chapter.
- (3) Category II, III, and IV Wetlands.
  - (a) Any proposed alteration and mitigation shall comply with the mitigation performance standards and requirements of these regulations; and
  - (b) No net loss of wetland function and value may occur.
  - (c) Where enhancement or replacement is proposed, ratios shall comply with the requirements of subsection (7) of this section.
- (4) Mitigation for alterations to wetlands shall achieve equivalent or greater biological functions. Mitigation plans shall be consistent with the Department of Ecology Guidance on Wetland Mitigation in Washington State, Part 2: Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals, April, 2004, as revised.
- (5) Mitigation actions shall address functions affected by the alteration to achieve functional equivalency or improvement, and shall provide similar wetland functions as those lost except when:
  - (a) The filled/impacted wetland provides minimal functions as determined by a site-specific function assessment and the proposed mitigation action(s) will provide equal or greater functions or will provide functions shown to be limiting within a watershed through a formal watershed assessment plan or protocol; or
  - (b) Out-of-kind replacement will best meet formerly identified regional goals, such as replacement of historically diminished wetland types.
- (6) Mitigation actions that require compensation by replacing, enhancing, or substitution shall occur in the following order of preference:
  - (a) Preserving high-quality wetlands that are under imminent threat.
  - (b) Restoring wetlands on upland sites that were formerly wetlands.
  - (c) Creating wetlands on disturbed upland sites such as those with vegetative cover consisting primarily of exotic introduced species.
  - (d) Enhancing significantly degraded wetlands.
- (7) Wetland Replacement Ratios.
  - (a) Where wetland alterations are permitted by the City, the applicant shall restore or create areas of wetlands in order to compensate for wetland losses. Equivalent areas shall be determined according to acreage, function, type, location, timing factors, and projected success of restoration or creation.
  - (b) When creating or enhancing wetlands, the following acreage replacement ratios shall be used:

Category and Type of Wetland	Creation or Re-establishment	Rehabilitation (Restoration)	Re-establishment or Creation (R/C) and Enhancement	Enhancement Only
Category I Forested	6:1	12:1	1:1 R/C and 10:1 E	24:1
Category I based on score	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C and 2:1 E	6:1

(c) Increased Replacement Ratio. The Department may increase the ratios under the following circumstances:

- (i) Uncertainty exists as to the probable success of the proposed restoration or creation; or
- (ii) A significant period of time will elapse between impact and replication of wetland functions; or
- (iii) Proposed mitigation will result in a lower category wetland or reduced functions relative to the wetland being impacted; or
- (iv) The impact was an unauthorized impact.

(d) Decreased Replacement Ratio. The Department may decrease these ratios under the following circumstances:

- (i) Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions have a very high likelihood of success;
- (ii) Documentation by a qualified wetland specialist demonstrates that the proposed mitigation actions will provide functions and values that are significantly greater than the wetland being impacted; or
- (iii) The proposed mitigation actions are conducted in advance of the impact and have been shown to be successful.

(e) Enhanced and created wetlands shall be appropriately classified and buffered.

(D) Wetlands Performance/Design Standards.

- (1) Use plants indigenous to the Pacific Northwest region (not introduced or foreign species);
- (2) Use plants adaptable to a broad range of water depths;
- (3) Plants should be commercially available or available from local sources;
- (4) Plant species high in food and cover value for fish and wildlife must be used;
- (5) Avoid committing significant areas of the site to species that have questionable potential for successful establishment;
- (6) Plant selection must be approved by a qualified wetland specialist;
- (7) Water depth is not to exceed six and one-half feet (two meters);



- (8) The grade or slope that water flows through the wetland is not to exceed six percent for wetland creation sites;
- (9) Slopes within the wetland basin and the buffer zone may not be steeper than 3:1 (horizontal to vertical) for wetland creation sites;
- (10) Substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals or solid/hazardous wastes) inorganic/organic materials for wetland creation sites;
- (11) Planting densities and placement of plants should be determined by a qualified wetland professional and shown on the design plans;
- (12) The planting plan must be approved by the Department;
- (13) Confine stockpiling to upland areas and ensure contract specifications limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the Committee;
- (14) Planting instructions shall be submitted which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;
- (15) Apply controlled-release non-phosphorus fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);
- (16) Install an irrigation system, if necessary, for the initial establishment period;
- (17) Construction specifications and methods must be approved by a qualified consultant and the Department; and
- (18) Construction management should occur by a qualified consultant and be inspected by the City.

## **21.64.040 Frequently Flooded Areas**

### **(A) Classification and Rating of Frequently Flooded Areas.**

To promote consistent application of the standards and requirements of this chapter, frequently flooded areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

- (1) **Frequently Flooded Areas Classifications.** Frequently flooded areas shall be classified according to the criteria in this section.
  - (a) **Floodplain.** The total area subject to inundation by the base flood (the flood that has a one percent chance of occurring in any given year).
  - (b) **Flood Fringe.** The portion of the floodplain outside of the floodway which is generally covered by flood waters during the base flood and is generally associated with standing water rather than rapidly flowing water.
  - (c) **FEMA Floodway.** The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the FEMA base flood flow without increasing the FEMA base flood elevation more than one foot.
  - (d) **Zero-Rise Floodway.** The channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation. The zero-rise floodway will always include the FEMA floodway.
- (2) **Classification of frequently flooded areas shall be determined by the Committee based on consideration of the following factors:**
  - (a) Maps adopted pursuant to this chapter including the frequently flooded areas map, which identifies the approximate location and extent of the 100-year floodplain. This map shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of frequently flooded areas shall be determined in the field by a qualified

consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail.

The City will employ hydrologic models to define the extent of the zero-rise floodway. If the zero-rise floodway has not yet been defined for the property in question, the applicant will be responsible for modeling the base flood elevation and delineating the extent of the zero-rise floodway, consistent with the assumptions in the Bear Creek Basin Plan as adopted by the City. In the absence of a City hydrologic model, FEMA data will be acceptable;

- (b) Flood Insurance Rate Maps published by the Federal Emergency Management Agency;
- (c) Application of the criteria contained in these regulations; and
- (d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

(B) Alteration of Frequently Flooded Areas.

Alteration of frequently flooded areas may only be permitted subject to the criteria in Sections 21.64.020(D) through 21.64.020(E), 21.64.030(C), 21.64.040(C), 21.64.050(B), and 21.64.060(D) of the Zoning Code.

(C) Flood Hazard Areas – Development Standards.

- (1) Flood Hazard Areas Generally. For all new structures or substantial improvements, the applicant must provide certification by a qualified consultant of the actual as-built elevation of the lowest floor, including basement, and, if applicable, the actual as-built elevation to which the structure is flood-proofed. If the structure has a basement, this must be indicated.
- (2) The Flood Fringe Outside the Zero-Rise Floodway.
  - (a) Except for downtown development along the Sammamish River in the 100-year floodplain from the Puget Sound Energy transmission line crossing to SR 520, development shall not reduce the effective base flood storage volume of the floodplain. Grading or other activity which would reduce the effective storage volume must be mitigated by creating compensatory storage on the site. Off-site compensatory storage may be permitted if binding legal arrangements assure that the effective compensatory storage volume will be preserved over time.
  - (b) No structure shall be allowed which would be at risk due to stream bank destabilization including that associated with channel relocation or meandering.
  - (c) All elevated construction must be designed and certified by a professional structural engineer registered in the State of Washington and must be approved by the City prior to construction.
  - (d) Subdivisions, short subdivisions, binding site plans, site plan review, special Land Use Permits, and general Land Use Permits shall follow the following requirements:
    - (i) New building lots shall contain 3,600 square feet or more of buildable land outside the zero rise floodway and building setback lines shall be shown on the face of the plat to restrict permanent structures to the area so defined;
    - (ii) All utilities and facilities, such as sewer, gas, electrical, telephone, cable communications and water systems, shall be located and constructed consistent with subsection (2)(i) of this section;
    - (iii) Base flood data and flood hazard notes shall be shown on the face of the recorded plat, including, but not limited to, the base flood elevation, required flood protection elevations, and the boundaries of the floodplain and the floodway, if determined; and

- (iv) The following note shall be recorded with the King County Department of Records and Elections for all affected lots:

### **NOTICE**

Lots and structures located within flood hazard areas may be inaccessible by emergency vehicles during flood events. Residents and property owners should take appropriate advance precautions.

- (e) New residential construction and substantial improvement shall meet the following criteria:
- (i) The lowest floor including basements and below-grade crawl spaces per FEMA regulations shall be elevated to the flood protection elevation.
  - (ii) Portions of the building that are below the flood protection elevation shall not be fully enclosed. The areas below the lowest floor shall be designed to automatically equalize hydrodynamic flood forces on exterior walls by allowing the entry and exit of floodwaters. Designs for meeting this requirement must meet or exceed the following minimum criteria:
    - (A.) Minimum of two openings on opposite walls having a total open area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
    - (B.) The bottom of all openings shall be no higher than one foot above grade.
  - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the unrestricted entry and exit of floodwaters.
- (f) New nonresidential construction and substantial improvement of any existing commercial, industrial, or other nonresidential structure shall meet the elevation requirements of residential construction.
- (g) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- (h) For all mobile and manufactured homes, all standards for flood hazard protection for conventional residential construction shall apply. All manufactured and mobile homes must be anchored and shall be installed using methods and practices that minimize flood damage. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (i) Utilities shall meet the following criteria:
- (i) All new and replacement utilities, including sewage treatment facilities, shall be flood-proofed to, or elevated above, the flood protection elevation.
  - (ii) New on-site sewage disposal systems shall be located outside the limits of the 100-year floodplain. The installation of new on-site sewage disposal systems in the floodplain is prohibited.
  - (iii) Sewage and agricultural waste storage facilities shall be flood-proofed to the base flood elevation plus three feet.
  - (iv) Above-ground utility transmission lines, other than electrical transmission lines, shall only be allowed for the transport of nonhazardous substances.
  - (v) Buried utility transmission lines transporting hazardous substances (as defined by the Washington State Hazardous Waste Management Act in RCW 70.105.005) shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.
- (j) Critical facilities may be allowed within the flood fringe of the floodplain. All such proposed uses shall be evaluated as part of the underlying land use permit. Critical facilities constructed within the flood fringe shall

have the lowest floor elevated to three or more feet above the base flood elevation. Flood-proofing and sealing measures must be taken to ensure that hazardous or toxic substances will not be displaced by or released into floodwaters. Access routes elevated to the flood protection elevation shall be provided to all critical facilities to the nearest maintained public street or roadway located outside of the floodplain.

(k) The Committee shall review all Land Use Permits to determine that all necessary permits have been obtained as required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as required by Section 60.3(a)(2) of 44 CFR.

(l) Storage and containment of hazardous or dangerous chemicals, substances or materials, as those terms are determined by applicable state and federal regulations, shall be prohibited; provided, that existing uses involving storage, etc., shall conform to the flood protection elevation when applying for any permit.

(3) Development in the Zero-Rise Floodway.

(a) Activities allowed within the zero-rise floodway must conform to the requirements of this section, as well as the requirements that apply to the flood fringe outside the zero-rise floodway as identified in subsection (2) of this section.

(b) No development activity shall reduce the effective storage volume of the floodplain.

(c) No development, including permitted new construction or reconstruction, shall cause any increase in the zero-rise base flood elevation.

(d) No temporary structures or storage of materials hazardous to public health, safety and welfare shall be permitted in the zero-rise floodway.

(e) Construction of new residential or nonresidential structures is permitted in the zero-rise floodway only in the following circumstances:

(i) The structure must be on a lot legally in existence at the time the ordinance codified in this chapter becomes effective;

(ii) The structure must be on a lot that contains less than 3,600 square feet of buildable land outside the zero-rise floodway; and

(iii) The structure must meet the construction standards set forth in subsections (2) and (3)(b), (3)(c), and (3)(d) of this section.

(f) New lots that include part of the zero-rise floodway may be created only if the lots meet the requirements of subsection (2)(d) of this section and administrative rules, or are declared as non-building lots on the face of the plat.

(g) The following circumstances are presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact:

(i) Substantial improvement on existing residential structures outside the zero-rise floodway where the building footprint is not increased.

(ii) Substantial improvement of an existing residential structure shall meet the requirements for new residential construction set forth in subsection (2)(e) of this section.

(h) Reconstruction of an existing residential structure shall meet the requirements for new residential construction set forth in subsection (2)(e) of this section.

(i) Utilities and roads are permitted in the zero-rise floodway only when no other location is practicable, or when mitigating measures achieve zero-rise floodway elevations, and shall meet the minimum criteria set forth in subsection (2)(i) of this section and the following requirements:

(i) Construction of sewage treatment facilities shall be prohibited.

- (ii) Utility transmission lines transporting hazardous substances shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood as predicted by a professional civil engineer licensed by the State of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.

(j) Critical facilities shall not be constructed in the zero-rise floodway.

(k) Floodway Dependent Structures. Installations or structures that are floodway dependent may be located in the floodway; provided that the development proposal receives approval from all other agencies with jurisdiction and meets all standards in Sections 21.64.020(D) and 21.64.030(C) of the Zoning Code. Such installations include but are not limited to:

- (i) Dams or diversions for water supply, flood control, hydroelectric production, irrigation or fisheries enhancement;

- (ii) Flood damage reduction facilities such as levees and pumping stations;

- (iii) Stream bank stabilization structures where no feasible alternative exists to protecting public or private property;

- (iv) Storm water conveyance facilities subject to the requirements of the development standards for streams and wetlands, and other relevant City of Redmond development standards;

- (v) Boat launches, docks and related recreation structures;

- (vi) Bridge piers and abutments; and

- (vii) Fisheries enhancement or stream restoration projects.

(l) Development of the area located downstream of Redmond Way on Bear Creek may be allowed:

- (i) when mitigating measures achieve zero-rise floodway elevations, or

- (ii) when surface water elevations are not increased over one foot provided no significant unmitigated upstream, downstream, or on-site environmental impacts are created.

(4) Development in the FEMA Floodway.

- (a) Construction or placement of new residential or nonresidential structures is prohibited within the FEMA floodway. Shoreline protective structures, bridges, roads, trails and railroads are permitted within the FEMA floodway.

- (b) No development subject to these regulations, including permitted new construction or reconstruction, shall cause any increase in the FEMA base flood elevation.

- (c) Substantial improvement of an existing residential structure located in the floodway must meet the requirements set out in WAC 173-158-070 as amended. Such substantial improvement is presumed to produce no increase in base flood elevation and shall not require special studies to establish this fact.

## **21.64.050 Critical Aquifer Recharge Areas**

(A) Classification and Rating of Critical Aquifer Recharge Areas.

To promote consistent application of the standards and requirements of this chapter, critical aquifer recharge areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

(1) Critical Aquifer Recharge Areas Classification. Critical aquifer recharge areas are those areas with a critical recharging effect on aquifers used for potable water. Wellhead protection involves the management of activities that have a potential to degrade the quality of groundwater produced by a supply well. The City of Redmond is

classified into four wellhead protection zones that are based on proximity to and travel time of groundwater to the City's public water source wells, and are designated using guidance from the Washington Department of Health Wellhead Protection Program pursuant to Chapter 246-290 WAC.

- (a) Wellhead Protection Zone 1 represents the land area overlying the six-month time-of-travel zone of any public water source well owned by the City.
  - (b) Wellhead Protection Zone 2 represents the land area that overlies the one-year time-of-travel zone of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zone 1.
  - (c) Wellhead Protection Zone 3 represents the land area that overlies the five-year and 10-year time-of-travel zones of any public water source well owned by the City, excluding the land area contained within Wellhead Protection Zones 1 or 2.
  - (d) Wellhead Protection Zone 4 represents all the remaining land area in the City not included in Wellhead Protection Zones 1, 2, or 3.
- (2) Classification of wellhead protection zones shall be determined in accordance with the City's adopted Wellhead Protection Zone Map, which serves to designate Zones 1 through 4. The Committee, at its discretion, may consider the following factors:
- (a) Maps adopted pursuant to this chapter;
  - (b) Application of the criteria contained in these regulations; and
  - (c) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

(B) Alteration of Critical Aquifer Recharge Areas.

Alteration of critical aquifer recharge areas may only be permitted subject to the criteria in Sections 21.64.020(D) and 21.64.020(E), 21.64.030(C), 21.64.040(B), 21.64.050(B), and 21.64.060(D) of the Zoning Code.

(C) Prohibited Activities in Wellhead Protection Zones.

- (1) Land uses or activities for new development or redevelopment that pose a significant hazard to the City's groundwater resources resulting from storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall be prohibited in Wellhead Protection Zones 1 and 2. These land uses and activities include, but are not limited to:
- (a) Large on-site sewage systems, as defined in Chapter 246-272A WAC;
  - (b) Hazardous liquid pipelines as defined in Chapter 81.88 RCW and Chapter 21.78 of the Zoning Code;
  - (c) Solid waste landfills;
  - (d) Solid waste transfer stations;
  - (e) Liquid petroleum refining, reprocessing, and storage;
  - (f) Bulk storage facilities as defined in Chapter 21.78 of the Zoning Code;
  - (g) The storage or distribution of gasoline treated with the additive MTBE;
  - (h) Hazardous waste treatment, storage, and disposal facilities except those defined under permit by rule for industrial wastewater treatment processes per WAC 173-303-802(5)(c);
  - (i) Chemical manufacturing, including but not limited to organic and inorganic chemicals, plastics and resins, pharmaceuticals, cleaning compounds, paints and lacquers, and agricultural chemicals;

- (j) Dry cleaning establishments using the solvent perchloroethylene;
  - (k) Primary and secondary metal industries that manufacture, produce, smelt, or refine ferrous and non-ferrous metals from molten materials;
  - (l) Wood preserving and wood products preserving;
  - (m) Mobile fleet fueling operations;
  - (n) Class I, Class III, Class IV and the following types of Class V wells: 5A7, 5F1, 5D3, 5D4, 5W9, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 as regulated under Chapter 90.48 RCW, and Chapters 173-200 and 173-218 WAC as amended;
  - (o) Permanent dewatering of the aquifer for new projects and redevelopment;
  - (p) Irrigation with graywater or reclaimed water;
- (2) Other land uses and activities that the City determines would pose a significant groundwater hazard to the City's groundwater supply.
- (3) Wellhead Protection Zones. Development within the City of Redmond shall implement the performance standards contained in Section 21.64.050(D) that apply to the zone in which it is located.

(D) Wellhead Protection Zone Performance Standards.

- (1) Any uses or activities locating in the City of Redmond which involve storing, handling, treating, using, producing, recycling, or disposing of hazardous materials or other deleterious substances shall comply with the following standards that apply to the zone in which they are located. Residential uses of hazardous materials or deleterious substances are exempt from the following standards.
- (2) If a property is located in more than one wellhead protection zone, the Director of Public Works shall determine which standards shall apply based on an assessment evaluation of the risk posed by the facility or activity. The assessment evaluation shall include, but not be limited to: (a) the location, type, and quantity of the hazardous materials or deleterious substances on the property; (b) the geographic and geologic characteristics of the site; and (c) the type and location of infiltration on the site.
- (3) Development within Wellhead Protection Zones 1 or 2, and any facility or activity per RMC 13.07.100(A), shall implement the following performance standards:
  - (a) Secondary Containment.
    - (i) The owner or operator of any facility or activity shall provide secondary containment for hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid or in quantities specified in the Redmond Fire Code (Chapter 15.06 RMC), whichever is smaller.
    - (ii) Hazardous materials stored in tanks that are subject to regulation by the Washington State Department of Ecology under Chapter 173-360 WAC (Underground Storage Tank Regulations) are exempt from the secondary containment requirements of this section; provided, that documentation is provided to demonstrate compliance with those regulations.
  - (b) Vehicle Fueling, Maintenance, and Storage Areas. Fleet and automotive service station fueling, equipment maintenance, and vehicle washing areas shall have a containment system for collecting and treating all runoff from such areas and preventing release of fuels, oils, lubricants, and other automotive fluids into soil, surface water, or groundwater. Appropriate emergency response equipment and spill kits shall be kept on-site during transfer, handling, treatment, use, production, recycling or disposal of hazardous materials or other deleterious substances.
  - (c) Loading and Unloading Areas. Secondary containment or equivalent best management practices, as approved by the Director of Public Works, shall be required at loading and unloading areas that store, handle,

treat, use, produce, recycle, or dispose of hazardous materials or other deleterious substances in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid.

- (d) Storm Water Infiltration Systems. Design and construction of new storm water infiltration systems must address site-specific risks of releases posed by all hazardous materials on-site. These risks may be mitigated by physical design means or equivalent best management practices in accordance with an approved Hazardous Materials Management Plan. Design and construction of said storm water infiltration systems shall also be in accordance with RMC 15.24.020 and the City of Redmond Clearing, Grading and Stormwater Technical Notebook and shall be certified for compliance with the requirements of this section by a professional engineer or engineering geologist registered in the State of Washington.
- (e) Well construction and operation shall comply with the standards in RMC 15.24.095.
- (f) Protection Standards During Construction. The following standards shall apply to construction activities occurring where construction vehicles will be refueled on-site and/or the quantity of hazardous materials that will be stored, dispensed, used, or handled on the construction site is in aggregate quantities equal to or greater than 20 gallons liquid or 200 pounds solid, exclusive of the quantity of hazardous materials contained in fuel or fluid reservoirs of construction vehicles. As part of the City's project permitting process, the City may require any or all of the following items:
  - (i) A development agreement;
  - (ii) Detailed monitoring and construction standards;
  - (iii) Designation of a person on-site during operating hours who is responsible for supervising the use, storage, and handling of hazardous materials and who has appropriate knowledge and training to take mitigating actions necessary in the event of fire or spill;
  - (iv) Hazardous material storage, dispensing, refueling areas, and use and handling areas shall be provided with secondary containment adequate to contain the maximum release from the largest volume container of hazardous substances stored at the construction site;
  - (v) Practices and procedures to ensure that hazardous materials left on-site when the site is unsupervised are inaccessible to the public. Locked storage sheds, locked fencing, locked fuel tanks on construction vehicles, or other techniques may be used if they will preclude access;
  - (vi) Practices and procedures to ensure that construction vehicles and stationary equipment that are found to be leaking fuel, hydraulic fluid, and/or other hazardous materials will be removed immediately or repaired on-site immediately. The vehicle or equipment may be repaired in place, provided the leakage is completely contained;
  - (vii) Practices and procedures to ensure that storage and dispensing of flammable and combustible liquids from tanks, containers, and tank trucks into the fuel and fluid reservoirs of construction vehicles or stationary equipment on the construction site are in accordance with the Redmond Fire Code (Chapter 15.06 RMC); and
  - (viii) Practices and procedures, and/or on-site materials adequate to ensure the immediate containment and cleanup of any release of hazardous substances stored at the construction site. On-site cleanup materials may suffice for smaller spills whereas cleanup of larger spills may require a subcontract with a qualified cleanup contractor. Releases shall immediately be contained, cleaned up, and reported if required under RMC 13.07.120. Contaminated soil, water, and other materials shall be disposed of according to state and local requirements.
- (g) Fill Materials. Fill material shall comply with the standards in RMC 15.24.080 and 15.24.095.
- (h) Cathodic Protection Wells. Cathodic protection wells shall be constructed following the standards in RMC 15.24.095.
- (i) Underground Hydraulic Elevator Cylinders. All underground hydraulic elevator pressure cylinders shall be constructed following the standards in RMC 15.24.095.



- (j) Best Management Practices. All development or redevelopment shall implement best management practices (BMPs) for water quality and quantity, as approved by the Technical Committee, such as biofiltration swales and use of oil-water separators, BMPs appropriate to the particular use proposed, clustered development, and limited impervious surfaces.
- (4) Development within Wellhead Protection Zone 3 shall implement the following performance measures:
- (a) Compliance with the performance standards for vehicle fueling, maintenance and storage areas; loading and unloading areas; well construction and operation; fill materials; cathodic protection wells; underground hydraulic elevator cylinders, and best management practices in subsections (3)(b), (c), (e), (h), (i), and (j) of this section; and
- (5) Development within Wellhead Protection Zone 4 shall implement best management practices (BMPs) for water quality and quantity as approved by the Technical Committee.
- (6) An incremental environmental improvement to a system protective of groundwater shall not alter, expand, or intensify an existing nonconformance but may proceed without having to meet the following City codes, with prior approval from the Director of Public Works or his/her designee:
- (a) Restrictions associated with critical areas and critical area buffers, if the footprint of the original system protective of groundwater is located within the same critical area buffer and it can be demonstrated through best available science that there will be no significant adverse impacts to the critical area and its buffer;
  - (b) Any requirement to bring a portion of the facility up to current building, fire, or land use codes that is triggered by the value or design of the incremental environmental improvement to a system protective of groundwater;
  - (c) The incremental improvement shall not qualify as a redevelopment that would otherwise be prohibited by Section 21.64.050(C)(1).

## **21.64.060 Geologically Hazardous Areas**

### **(A) Classification and Rating of Geologically Hazardous Areas.**

To promote consistent application of the standards and requirements of this chapter, geologically hazardous areas within the City of Redmond shall be rated or classified according to their characteristics, function and value, and/or their sensitivity to disturbance.

- (1) Geologically Hazardous Area Classifications. Geologically hazardous areas shall be classified according to the criteria in this section.
- (a) Erosion Hazard Areas. Erosion hazard areas are lands or areas underlain by soils identified by the U.S. Department of Agriculture Soil Conservation Service (SCS) as having “severe” or “very severe” rill and inter-rill erosion hazards. This includes, but is not limited to, the following group of soils when they occur on slopes of 15 percent or greater: Alderwood-Kitsap (AkF), Alderwood gravelly sandy loam (AgD), Kitsap silt loam (KpD), Everett (EvD) and Indianola (InD).
  - (b) Landslide Hazard Areas. Landslide hazard areas are areas potentially subject to significant or severe risk of landslides based on a combination of geologic, topographic, and hydrogeologic factors. They include areas susceptible because of any combination of bedrock, soil, slope, slope aspect, structure, hydrology, or other factors. They are areas of the landscape that are at a high risk of failure or that presently exhibit downslope movement of soil and/or rocks and that are separated from the underlying stationary part of the slope by a definite plane of separation. The plane of separation may be thick or thin and may be composed of multiple failure zones depending on local conditions, including soil type, slope gradient, and groundwater regime.

Landslide hazard areas include:

- (i) Areas of historic failures, such as:

(A.) Areas designated as quaternary slumps or landslides on maps published by the United States Geologic Survey (USGS); or

(B.) Those areas designated by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) as having a "severe" limitation for building site development.

- (ii) Areas containing a combination of slopes steeper than 15 percent, springs or groundwater seepage, and hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock;
- (iii) Areas that have shown movement during the Holocene epoch (from 10,000 years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;
- (iv) Slopes that are parallel or sub-parallel to planes of weakness in subsurface materials;
- (v) Slopes having gradients steeper than 80 percent subject to rockfall during seismic shaking;
- (vi) Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action; or
- (vii) Any area with a slope 40 percent or steeper with a vertical relief of 10 feet or more.

(c) Seismic Hazard Areas. Seismic hazard areas are lands subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting.

(2) Classification of geologically hazardous areas shall be determined by the Committee based on consideration of the following factors:

- (a) Maps adopted pursuant to this chapter; including the landslide hazard area, erosion hazard area, and seismic hazard areas maps, which identify the approximate location and extent of these hazard areas. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of geologically hazardous areas shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the critical area location and designation shown on the City's map and the criteria or standards of this section, the criteria and standards shall prevail;
- (b) Maps published by other governmental agencies such as:
  - (i) USGS landslide hazard and seismic hazard maps;
  - (ii) Department of Natural Resources (DNR) seismic hazard maps for western Washington and slope stability maps;
- (c) Application of the criteria contained in these regulations; and
- (d) Consideration of the technical reports submitted by qualified consultants in connection with applications subject to these regulations.

(B) Landslide Hazard Area Buffers.

- (1) Landslide hazard area buffers shall be measured from the top and toe and along sides of the slope.
- (2) Minimum Landslide Hazard Area Buffer. Required buffers shall be 50 feet. The width of the buffer shall reflect the sensitivity of the landslide hazard area in question and the types and density of uses proposed on or adjacent to the geologic hazard. In determining the appropriate buffer width, the Committee shall consider the recommendations contained in any technical report required by these regulations and prepared by an applicant's qualified consultant.
- (3) Buffer Reduction. Buffers may be reduced to a minimum of 15 feet when a qualified professional demonstrates through technical studies that the reduction will adequately protect the proposed and surrounding development from the critical landslide hazard.

- (4) Increased Buffer. The buffer may be increased where the Technical Committee determines a larger buffer is necessary to prevent risk of damage to proposed and existing development.

(C) Alteration of Geologically Hazardous Areas – Generally.

Alteration of geologically hazardous areas or their established buffers may only be permitted subject to the criteria in Sections 21.64.050(D) and 21.64.020(E), 21.64.030(C), 21.64.040(B), 21.64.050(B), 21.64.060(D), 21.76.070(E) of the Zoning Code.

(D) Alteration of Geologically Hazardous Areas.

- (1) The City shall approve, condition or deny proposals in a geologically hazardous area as appropriate based upon the effective mitigation of risks posed to property, health and safety. The objective of mitigation measures shall be to render a site containing a geologically hazardous site as safe as one not containing such hazard. Conditions may include limitations of proposed uses, modification of density, alteration of site layout and other appropriate changes to the proposal. Where potential impacts cannot be effectively mitigated, or where the risk to public health, safety and welfare, public or private property, or important natural resources is significant notwithstanding mitigation, the proposal shall be denied.

- (2) Landslide Hazard Areas. Development shall be prohibited in landslide hazard areas except as noted below:

- (a) Pin pilings or footings for decks are permitted provided that they do not impact the stability of the slope, as demonstrated by geotechnical studies; and
- (b) The installation and construction of streets and/or utilities, subject to the criteria and process set forth in Section 21.76.070(E) of the Zoning Code.

(E) Geologically Hazardous Area Performance Standards.

- (1) Relevant performance standards from Sections 21.64.020(F) and 21.64.020(G) and 21.64.030(D), as determined by the Committee, shall be incorporated into mitigation plans.
- (2) Development within a geologically hazardous area shall meet the following basic requirements unless it can be demonstrated that an alternative design that deviates from one or more of these standards provides equivalent or greater long-term slope stability. The following performance standards shall be reflected in proposals within landslide and erosion hazard areas:
- (a) Geotechnical studies shall be prepared by a qualified consultant to identify and evaluate potential hazards and to formulate mitigation measures;
  - (b) Construction methods will reduce or not adversely affect geologic hazards;
  - (c) Structures and improvements shall minimize alterations to the natural contour of the slope and foundations shall be tiered where possible to conform to existing topography;
  - (d) Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;
  - (e) Structures and improvements shall be clustered to avoid geologically hazardous areas;
  - (f) Unless otherwise provided or as part of an approved alteration, removal of vegetation from an erosion or landslide hazard area or related buffer shall be prohibited;
  - (g) Development shall be designed to minimize impervious surface coverage;
  - (h) Disturbed areas should be replanted as soon as feasible pursuant to an approved landscape plan;
  - (i) Clearing and grading regulations as set forth by the City shall be followed;

- (j) Use of retaining walls that allow maintenance of existing natural slope areas are preferred over graded artificial slopes;
- (k) Temporary erosion and sedimentation controls, pursuant to an approved plan, shall be implemented during construction;
- (l) A master drainage plan shall be prepared for large projects as required by the City Engineer;
- (m) A monitoring program shall be prepared for construction activities permitted in geologically hazardous areas;
- (n) Development shall not increase instability or create a hazard to the site or adjacent properties, or result in a significant increase in sedimentation or erosion; and
- (o) Point discharges from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area shall be prohibited except as follows:
  - (i) Conveyed via continuous storm pipe downslope to a point where there are no erosion hazard areas downstream from the discharge;
  - (ii) Discharged at flow durations matching predeveloped conditions, with adequate energy dissipation, into existing channels that previously conveyed storm water runoff in the predevelopment state; or
  - (iii) Dispersed discharge upslope of the steep slope onto a low-gradient undisturbed buffer demonstrated to be adequate to infiltrate all surface and storm water runoff, and where it can be demonstrated that such discharge will not increase the saturation of the slope.

## **21.64.070 Procedures**

### **(A) Procedural Provisions.**

- (1) Interpretation and Conflicts. Any question regarding interpretation of these regulations shall be resolved pursuant to the procedures set forth in Article VI of the Zoning Code.
- (2) Penalties and Enforcement. Compliance with these regulations and penalties for their violation shall be enforced pursuant to the procedures set forth in Article VI of the Zoning Code.
- (3) Appeals from Permit Decisions. Appeals from permit decisions shall be governed by the procedures set forth in Article VI of the Zoning Code.

### **(B) Severability.**

If any provision of these regulations or its application to any person or circumstance is held invalid by a court of competent jurisdiction, the remainder of these regulations or the application to other persons or circumstances shall not be affected.